

*Application No. 10/767,530*

*Amendment Date October 3, 2007; Reply to Office action of September 13, 2007.*

### **Election of Claims**

The listing of claims will replace all prior versions, and listings, of claims in the application:

#### **Listing of Claims:**

Claim 1 (original): A fast image region partition method comprises the steps of:

- a) Input a component labeled image;
- b) Perform a two pass ZOI creation method using the component labeled image to create a ZOI image.

Claim 2 (original): The fast image region partition method of claim 1 further comprises the steps of:

- a) Input an input image;
- b) Perform component labeling using the input image to create the component labeled image.

Claim 3 (original): The fast image region partition method of claim 1 wherein the two pass ZOI creation step further comprises the steps of:

- a) Perform a first pass scan using the component labeled image to create a first pass intermediate distance image and a shortest distance component label image;
- b) Perform a second pass scan using the first pass intermediate distance image and the shortest distance component label image to create a background distance transform image and a updated shortest distance component label image.

Claim 4 (original): The two pass ZOI creation step of claim 3 wherein the first pass scan depends on a selected set of adjacent neighbors and their distance lengths.

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Claim 5 (original): The two pass ZOI creation step of claim 3 wherein the second pass scan depends on a selected set of adjacent neighbors and their distance lengths.

Claim 6 (original): An adaptive image region partition method comprises the steps of:

- a) Input a component labeled image;
- b) Perform an adaptive two pass ZOI creation method using the component labeled image to create an adaptive ZOI image.

Claim 7 (original): The adaptive image region partition method of claim 6 further comprises the steps of:

- a) Input an input image;
- b) Perform component labeling using the input image to create the component labeled image.

Claim 8 (original): The adaptive image region partition method of claim 6 wherein the adaptive two pass ZOI creation step further comprises the steps of:

- a) Perform a first pass scan using the component labeled image to create a first pass intermediate adaptive distance image and an adaptive shortest distance component label image;
- b) Perform a second pass scan using the first pass intermediate adaptive distance image and the adaptive shortest distance component label image to create an adaptive distance transform image and an updated adaptive shortest distance component label image.

Claim 9 (original): The two pass adaptive ZOI creation step of claim 8 wherein the first pass scan depends on a selected set of adjacent neighbors and their distance lengths wherein the distance lengths depend on their associated component labels.

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Claim 10 (original): The two pass ZOI creation step of claim 8 wherein the second pass scan depends on a selected set of adjacent neighbors and their distance lengths wherein the distance lengths depend on their associated component labels.

Claim 11 (original): A cell segmentation method comprises the steps of:

- a) Input a nuclei mask image;
- b) Input a cell mask image;
- c) Perform nuclei region partition using the nuclei mask image to create nuclei mask ZOI;
- d) Perform cell region separation using the cell masks and the nuclei mask ZOI to generate cell separated regions.

Claim 12 (original): An adaptive cell segmentation method comprises the steps of:

- a) Input a nuclei mask image;
- b) Input a cell mask image;
- c) Perform adaptive nuclei region partition using the nuclei mask image to create adaptive nuclei mask ZOI;
- d) Perform adaptive cell region separation using the cell masks and the adaptive nuclei mask ZOI to generate adaptive cell separated regions.

Claim 13 (original): The adaptive cell segmentation method of claim 12 further excludes the pixels close to the adaptive nuclei mask ZOI boundaries.

Claim 14 (original): The adaptive cell segmentation method of claim 12 wherein the adaptive nuclei region partition method uses cell size estimate as the weighting factor for the length function.

Claims 15-18 (withdrawn)